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Kamen et al.(10) **Pub. No.: US 2022/0062541 A1**(43) **Pub. Date: Mar. 3, 2022**(54) **APPARATUS FOR INFUSING FLUID**(71) Applicant: **DEKA Products Limited Partnership**,
Manchester, NH (US)(72) Inventors: **Dean Kamen**, Bedford, NH (US); **John M. Kerwin**, Manchester, NH (US); **Colin H. Murphy**, Cambridge, MA (US); **Jonathan Parker**, Henniker, NH (US); **Daniel F. Pawlowski**, Mont Vernon, NH (US); **Dirk A. van der Merwe**, Canterbury, NH (US); **Larry B. Gray**, Merrimack, NH (US); **Christopher C. Langenfeld**, Nashua, NH (US); **Michael S. Place**, Manchester, NH (US); **Michael J. Slate**, Merrimack, NH (US)(21) Appl. No.: **17/347,959**(22) Filed: **Jun. 15, 2021****Related U.S. Application Data**

(63) Continuation of application No. 17/111,998, filed on Dec. 4, 2020, which is a continuation of application No. 15/584,376, filed on May 2, 2017, now Pat. No. 10,857,293, which is a continuation of application No. 13/840,339, filed on Mar. 15, 2013, now Pat. No. 9,675,756, which is a continuation-in-part of application No. 13/333,574, filed on Dec. 21, 2011, now Pat. No. 10,453,157, which is a continuation-in-part of application No. PCT/US11/66588, filed on Dec. 21, 2011, which is a continuation-in-part of application No. 13/723,238, filed on Dec. 21, 2012, now Pat. No. 9,759,369, which is a continuation-in-part of application No. 13/333,574, filed on Dec. 21, 2011, now Pat. No. 10,453,157, which is a continuation-in-part of application No. PCT/US11/66588, filed on Dec. 21, 2011, said application No. 13/840,339 is a continuation-in-part of application No. 13/723,235, filed on Dec. 21, 2012, now Pat. No. 9,400,873, which is a continuation-in-part of application No.

13/333,574, filed on Dec. 21, 2011, now Pat. No. 10,453,157, which is a continuation-in-part of application No. PCT/US11/66588, filed on Dec. 21, 2011, said application No. 13/840,339 is a continuation-in-part of application No. PCT/US12/71131, filed on Dec. 21, 2012, which is a continuation-in-part of application No. 13/333,574, filed on Dec. 21, 2011, now Pat. No. 10,453,157, which is a continuation-in-part of application No. PCT/US11/66588, filed on Dec. 21, 2011, said application No. 13/840,339 is a continuation-in-part of application No. 13/724,568, filed on Dec. 21, 2012, now Pat. No. 9,295,778, which is a continuation-in-part of application No. 13/333,574, filed on Dec. 21, 2011, now Pat. No. 10,453,157, which is a continuation-in-part of application No. PCT/US11/66588, filed on Dec. 21, 2011, said application No. 13/840,339 is a continuation-in-part of application No. 13/725,790, filed on Dec. 21, 2012,

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(57)

ABSTRACT

A pump for pumping fluid includes a tube platen, a plunger, a bias member, inlet and outlet valves, an actuator mechanism, a position sensor, and a processor. The plunger is configured for actuation toward and away from the infusion tube when the tube platen is disposed opposite to the plunger. The tube platen can hold an intravenous infusion tube. The bias member is configured to urge the plunger toward the tube platen.

